

If the suggestion that the features of this area were formed so recently is not tenable, then we have to go back to the Pleistocene and accept a very much longer isolation of the mangroves from the open sea.

The map which is reproduced herewith is reduced from a vegetation map of the area prepared from aerial photo-mosaics at a scale of 1 mile to 1 inch.

#### REFERENCE

CHURCHILL, D. M. 1959. Late Quaternary Eustatic Changes in the Swan River District. *Journ. Roy. Soc. W.A.*, 42: 53-55.

### FIELD NOTES ON THE WHITE-BREASTED ROBIN

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Little is known about the behaviour and general habits of the White-breasted Robin (*Eopsaltria georgiana*) and until Pepper (*W. Aust. Nat.*, 10, 1965) described the calls of two captive birds only two call notes had been recorded, a harsh "chit chit" and a whistling "wee-oh." Hence I take this opportunity to place on record observations made by myself at Banksiadale between September 22 and October 8, 1964.

Around Banksiadale the White-breasted Robin is essentially an inhabitant of the thickets growing along the small streams in the gullies of the Darling Range, but it does stray into the adjacent jarrah forest in search of food, and I even observed a pair of birds, which appeared to be resident in their surroundings, at a distance of some quarter of a mile from the nearest stream and accompanying thicket.

When in flight the birds make a fluttering noise with their wings and when bringing food to the young continually collide noisily with the foliage. I suspect this is done to induce the young birds to beg more intensely thereby revealing their position (the fledglings move around fairly freely) to the adult bringing food.

Like the Western Yellow Robin (*Eopsaltria griseogularis*) the White-breasted Robin sometimes glides for short distances before coming to perch. Another habit of both species is to jerk the wings and tail, but the White-breasted Robin does this more frequently than the Yellow Robin. When the tail is jerked the Yellow Robin elevates it only slightly, whereas the White-breasted Robin, although it too usually elevates the tail only slightly, frequently raises the tail to an angle of some 45deg. from the general line of the body. A feature of both species is that they droop their wings and this is particularly noticeable in the White-breasted Robin. The habit of remaining motionless when clinging to the side of a tree is also common to both species, but the White-breasted Robin does not remain "frozen" for as long as the Yellow Robin, and neither does it perch in this manner as often as the Yellow Robin. It would also seem that the White-breasted Robin is shyer and does not allow one to approach as closely as does the Yellow Robin.

Like the Yellow Robin, the White-breasted Robin obtains most if not all of its food on the ground, and when foraging for food it perches in even the smallest of bushes, on rocks, stumps and logs, and clings sideways to trees, blackboys, blackboy stalks, perpendicular branches of bushes and bracken fern stems. From these vantage points, though the bird may be only a few inches above the ground, it pounces on any insect which may serve as food. But it never remains on the ground for long. Invariably, regardless of whether it did or did not catch whatever it was after,

it returns to a perch almost immediately. This is in contrast to the Yellow Robin which sometimes remains on the ground to swallow the prey it may have caught. However, this difference may have been due to the fact that the White-breasted Robins under observation were feeding young. Another difference noted, namely, that the Yellow Robin avoids the lighter bushes and thinner stems that the White-breasted Robin is so fond of perching on, may be due to the difference in habitat.

On one occasion I observed a fledgling White-breasted Robin reject a beetle which was apparently too large for it to swallow. The adult picked the beetle up again and once more offered it to the young bird. It was again rejected. This offering and rejection of the beetle was repeated several times so the adult removed the beetle some small distance from the fledgling, shook it and dashed it on the ground a few times and re-offered it again. The beetle was still rejected and after a few more attempts by the adult to feed it to the young it was finally discarded and the adult went off in search of something new.

It is hard to syllabise many of the calls of the White-breasted Robin but Pepper has indicated that the species does have a variety, and that some calls are pertinent to certain behaviour.

The most frequently uttered call is a loud "zhip" (Pepper's "Z-ick") which although uttered singly may be repeated several times. Another call is a loud "wheest" and on a few occasions I heard the birds utter a call which sounds very like the whistling call of the Welcome Swallow (*Hirundo neoxena*). A loud penetrating call "see-ow" could easily be mistaken for a call of the Golden Whistler (*Pachycephala pectoralis*). This call may be uttered several times and is sometimes preceded by a scarcely audible "weet-weet." This is the call which has already been described as "wee-oh" by J. Ford (pers. comm.) and is undoubtedly Pepper's "che-op."

A harsh "chit" or "jit" and the harsh "chit chit" described by Serventy and Whittell (Pepper's "twick twick") are alarm calls which are uttered when the bird is alarmed or suddenly disturbed. A danger call is a harsh, grating "zhzhurr" (Pepper's "zick-her-rr") and was frequently uttered by a bird attacking a domestic cat which caught and killed one of its two fledglings.

A soft twittering call "twitiurr" is apparently used to lead the young away from danger. I heard this uttered on two occasions when I was very close to one of the young ones and the fledgling immediately responded by going to the adult following it away from me (the danger). The call is definitely not associated with feeding. The adult White-breasted Robin also has other calls which I was unable to isolate and describe.

The begging calls of the young are a soft "tsee," a soft "tsit" and a loud "tsip." The "tsee" and "tsit" calls may be uttered several times independent of one another or they may be combined to form an oft-repeated "tsee tsit" or "tsee-(short pause)-tsee-tsit." Sometimes at the height of begging these calls intensify into a rapid "tsi-si-si-si . . ." The other call "tsip" is sometimes uttered while the parents are absent but the young birds always change to the "tsee" or "tsit" calls at the approach of the parent.

I was unable to recognise any great similarity between any of the calls of the White-breasted Robin and those of the Yellow Robin and I did not observe any of the "whisper" (?) song which Pepper observed in his captive birds. But I have observed it in the Yellow Robin. During this type of warbling the Yellow Robin remains relaxed and does not jerk its wings or tail nor does it droop its wings. Presumably the White-breasted Robin does the same as Pepper states his birds were "sitting quietly."